

DR. DRIES DAEMS

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Date of birth: 20.07.1990

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RESEARCH INTERESTS

- Social complexity
- Urbanism
- Agent-based modelling
- Complex systems thinking
- Pottery studies
- Iron Age to Hellenistic Anatolia
- Social-ecological systems
- Human-environment interactions

EDUCATION

- 2014-2018** Ph.D. in Archaeology (KU Leuven) Obtained: 15 May 2018
Dissertation title: *Dynamics of social complexity: Community formation beyond the origin of polis during the Iron Age, Achaemenid, and Hellenistic periods. The case of Düzen Tepe, Sagalassos and southwest Anatolia.*
Supervisor: Prof. dr. Jeroen Poblome (KU Leuven)
Jury members:
prof. dr. Sander van der Leeuw (Arizona State University)
em. prof. dr. John Bintliff (University of Edinburgh)
prof. dr. Christopher Ratté (University of Michigan)
prof. dr. Philip Van Peer (KU Leuven)
prof. dr. Katelijn Vandorpe (KU Leuven)
- 2011-2012** MA in Archaeology (KU Leuven)
Thesis title: Elite Identity in Late Roman Britain. Material Manifestation and Societal Capacity (Supervisor: Prof. dr. Jeroen Poblome)
- 2008-2011** BA in Archaeology (KU Leuven)
Title: League Coins in Ancient Greece. A Critical Reflection on the *Herakles Drakonopnigon* series (Supervisor: Prof. dr. Johan Van Heesch)

EMPLOYMENT

- 2021 – Current** Assistant Professor in Settlement Archaeology and Digital Archaeology at Middle East Technical University
Visiting Assistant Professor at KU Leuven (0.20 FTE)
- 2020 – 2021** Substitute Lecturer at KU Leuven (0.10 FTE)
Course: Archaeological Theory, Methods and Practice III: Spatial Analysis in Archaeology
- 2019 – 2020** Postdoctoral researcher (0.5 FTE) with Sagalassos Project on C1 Project “*The role of change in long-term regional development. Approaching the dynamic metabolism of social-ecological systems in the Sagalassos/Ağlasun region.*”

Coordinator of Microproject Innovative Digital Learning (0.25 FTE):
"Modelling and Simulation in Archaeology" at KU Leuven

Substitute Lecturer at KU Leuven (0.10 FTE)
Course: Seminar in Classical Archaeology

2018 – 2019 Postdoctoral researcher at Suna & İnan Kiraç Research Centre for
Mediterranean Civilizations (Koç University, Antalya) on "*Polis
formation and synoikismos in southwest Anatolia*".

Substitute Lecturer at KU Leuven (0.10 FTE)
Course: Themes in Classical Archaeology

2014-2018 Ph.D. Researcher with Sagalassos Project at KU Leuven

FELLOWSHIPS, GRANTS AND BURSARIES

- 2021-2022 AKMED Project Support 2021
Funded by: Suna & İnan Kiraç Research Centre for Mediterranean
Civilizations (Koç University, Antalya)
Project title: Koine formation in Iron Age to Hellenistic Pisidia
Amount: 12,000 TL
- 2020-2024 Scientific Research Network Grant (coordinator)
Funded by Research Foundation Flanders
Project title: Network for Agent-based modelling of Social-ecological
systems in Archaeology (NASA)
Amount: €62,500
- 2020 Graduate Collaborative Research Awards (co-applicant)
Funded by: Universitas 21
Project title: Let's Work Together: Modelling the emergence of social
cooperation and complexity formation
Amount: \$3,550
- Bridge Grant
Funded by: yrCSS (Young Researchers of the Complex Systems Society)
Project title: Let's Work Together: Modelling the emergence of social
cooperation and complexity formation.
Amount: € 1,000
- Microproject Innovative Digital Learning
Funded by: KU Leuven
Project title: Modelling and Simulation in Archaeology
Amount: € 10,000
- 2019 IdeaLabs Grant for Interdisciplinary Research Groups (Extension)
Funded by Academic Foundation Leuven
Project title: Sustainability and Resilience in Past & Present Populations
Amount: €1,250
- Travel grant for participation in "Winter Workshop on Complex Systems
2020" at Gruyère (Switzerland)
Amount: F200

Bursary for Complex Systems Summer School, Santa Fe Institute
 Funded by: Academic Foundation Leuven
 Amount: €1,200

Bursary for conference participation at CAA 2019 (Krakow)
 Funded by: CAA International
 Amount: €480

2018-2019 Postdoc Fellowship for Visiting Scholars
 Funded by Tübitak: Scientific and Technological Research Council of Turkey
 Amount: 30,000 TL

2017-2019 IdeaLabs Grant for Interdisciplinary Research Groups (co-applicant)
 Funded by Academic Foundation Leuven
 Project title: Sustainability and Resilience in Past & Present Populations
 Amount: €2,500

2014-2018 Ph.D. Fellowship
 Funded by Research Foundation Flanders
 Project title: Dynamics of social complexity: Community formation beyond the origin of *polis*.
 Amount: Fully funded fellowship

COMPETENCIES AND SKILLS

Technical skills	Languages
<ul style="list-style-type: none"> • Agent-based modelling: Netlogo^{***} • GIS: QGIS^{***} and ArcGis^{**} • Data analysis: R^{***}, Excel^{**}, Python[*] • Network analysis: Visone^{**}, Gephi^{**} • Database management: Neo4j[*], Access^{***}, SQL[*] • Text processing: LaTeX^{**}, Markdown^{***}, Word^{***} 	<ul style="list-style-type: none"> • Dutch: Mother tongue • English: Excellent • French: Good • German: Average • Turkish: Conversational • Greek and Latin: Reading

TEACHING EXPERIENCE

2020-2021 Archaeological Theory, Methods and Practice III: Spatial Analysis (3BA) at KU Leuven (Substitute Lecturer)

Themes in Classical Archaeology (2/3 BA) at KU Leuven (Substitute Lecturer)

2019-2020 Seminar in Classical Archaeology (MA) at KU Leuven (Substitute Lecturer)

Workshop at Computer Applications & Quantitative Methods in Archaeology – Netherlands/Flanders Chapter Meeting
 “Agent-based modelling: Are computer simulations useful for archaeologists?”

2018-2019 Themes in Classical Archaeology (2/3 BA) at KU Leuven (Substitute Lecturer)

Guest lectures at Middle Eastern Technical University (Ankara) as part of Ph.D. course “Current Approaches in Archaeology”

Topic: Digital archaeology and model thinking: Social complexity in southwest Anatolia.

Workshop at Middle Eastern Technical University (Ankara)

“Digital archaeology and model thinking: Hands-on examples, best practices and tutorials in data science, agent-based modelling, and network analysis.”

2017-2018 Archaeological Theory, Methods and Practice I (1BA) at KU Leuven (Assistant Lecturer)

Archaeological Theory, Methods and Practice II (2BA) at KU Leuven (Assistant Lecturer)

Field school (1 BA) at KU Leuven (Assistant Lecturer)

2015-2016 Archaeological Theory, Methods and Practice I (1BA) at KU Leuven (Assistant Lecturer)

Field school (1 BA) at KU Leuven (Assistant Lecturer)

SELECTED PUBLICATIONS

Daems, D. (2021) *Social Complexity and Complex Systems in Archaeology*. Routledge.

Daems, D., Vandam, R., Cleymans, S., Broothaerts, N., Boogers, B., Matsuo, H., Mirhanoğlu, A. (In Press) The social metabolism of past societies. A new approach to environmental changes and societal responses in the territory of Sagalassos (SW Turkey). In: Erdkamp, P., Verboven, K. and Manning, J. (eds.) *Climate and Society in Ancient Worlds. Diversity in Collapse and Resilience*. Palgrave Studies in Ancient Economies. Palgrave.

Daems, D. (Accepted) Adaptive cycles in archaeology. Indicators of change and stability in socio-economic systems. In: Poblome, J. and Vandam, R. (eds.) *Once upon a river. Long-term change in the social metabolism of the Aĝlasun Valley*. Leuven University Press.

Daems, D. and P. Talloen (Accepted) Moving in together? Synoikismos and polis formation through push-pull dynamics in Sagalassos and southwest Anatolia. *BASOR*

Daems, D. (2020) Social Complexity and Complexity Economics. Studying Socio-Economic Systems at Düzen Tepe and Sagalassos (SW Turkey). In: K. Verboven (Ed.) *Complexity: A New Framework To Interpret Ancient Economy Data*. Palgrave Studies in Ancient Economies, pp. 163-201.

Daems, D. (2020) Reassessing the Origin of Polis in Lycia and Southwest Anatolia. *Adalya* 23, pp. 111-132.

Daems, D. (2019) Building communities. Presenting a model of community formation and organizational complexity in southwestern Anatolia. *Journal of Anthropological Archaeology* 56, 101110.

Daems, D. (2019) On Complex Archaeologies: Conceptualising Social Complexity and its Potential for Archaeology, *Adaptive Behavior*.

Brughmans, T., Hanson, J., Mandich, M., Romanowska, I., Rubio-Campillo, X., Carrignon, S., Collins-Elliott, S., Crawford, K., **Daems, D.**, ... Ritondale, M. (2019) Formal Modelling Approaches to Complexity Science in Roman Studies: a Manifesto. *Theoretical Roman Archaeology Journal*.

Daems D., Poblome J. (2017). The Pottery of Late Achaemenid Sagalassos: an overview. *HEROM. Journal on Hellenistic and Roman Material Culture*, 6 (1), 49-62.

Daems D., Braekmans D., Poblome J. (2017). Late Achaemenid and Early Hellenistic Pisidian Material Culture from Düzen Tepe (SW Anatolia). *HEROM. Journal on Hellenistic and Roman Material Culture*, 6 (1), 11-47.

Daems D., Poblome J. (2016). Adaptive Cycles in Communities and Landscapes: The Case of Sagalassos and Düzen Tepe During the Classical/Hellenistic Period. *Archaeological Review from Cambridge*, 31 (2), 91-107.

PUBLIC OUTREACH

- 2020** Finalist 'Falling Walls Lab Leuven'
Title: Breaking the walls of past, present and future complexity.

Lecture at Rozenberg (3rd - 4th year secondary school)
Title: Archaeology and studying life in the ancient world.
- 2018** Lecture at Rozenberg (3rd - 4th year secondary school)
Title: Life in the ancient world.
- 2016** Lecture at Saint-Dymphna College (6th year secondary school)
Title: Sagalassos. The story of an ancient city.

Lecture for Association of Historians in Geel
Title: Sagalassos. The story of an ancient city.
- 2015** Lecture at Saint-Dymphna College (6th year secondary school)
Title: Sagalassos. The story of an ancient city.

FIELDWORK

- 2014 – Current** Pottery specialist with Sagalassos Archaeological Research Project
Material studies on Iron Age, Achaemenid & Hellenistic pottery of Sagalassos and the wider study area
- 2014-2015** Site assistant on excavations at Upper Agora and Rock Sanctuary

CONFERENCE AND SEMINAR ORGANISATION

- 2021** Main organizer of workshop "*From past to future: Deep-time patterns of sustainability and resilience in socio-ecological systems*" at KU Leuven, 11-12 May 2021.
- 2014-2020** Organising committee of the monthly "*Leuven Archaeological Research Seminars*" at KU Leuven.
- 2019** Organising committee of "*Computer applications & Quantitative Methods in Archaeology Conference (Netherlands-Flanders Chapter)*" at Leuven, 23-25 October 2019.
- 2016** Main organiser of *Synoikismos* seminar "*Complexity and social-ecological systems*" at KU Leuven, 18 February 2016.

CONFERENCE PARTICIPATION AND INVITED TALKS

- 2021 5th IARPotHP Conference: "From East to West and Back Again: Societies, Economies and Ceramics in the Hellenistic World", Seville [online]
Paper title: *Why do things change anyway? Redefining koine as an emergent social, cultural and economic phenomenon at Sagalassos.*
- Computer applications & Quantitative Methods in Archaeology Conference 2021, Limassol [online].
Paper title: *PolisABM: Modelling polis formation, urban systems and social complexity in the eastern Mediterranean from Iron Age to Hellenistic times.*
- French Regional Conference on Complex Systems 2021, Lyon [online].
Paper title: *A new framework for understanding causal mechanisms in long-term trajectories of social complexity.*
- International Conference on Resources and Transformation in Pre-modern Societies, Bochum [online]
Paper title: *Simulating Resource Exploitation Strategies in Iron Age to Hellenistic Communities in Southwest Anatolia.*
- 2020 Procurement of raw materials. Pathways to the Late Neolithic of Central and Western Anatolia. Adam Mickiewicz University, Poznan.
Invited paper: *Resourceful communities: Strategies of resource exploitation in the area of Sagalassos.*
- 2019 4th IARPotHP Conference: Manufacturers and Markets. The Contributions of Hellenistic Pottery to Economies Large and Small, Athens.
Paper title: *The Hellenistic Pottery from Sagalassos: A General Framework of Typo-Chronology, Production, Consumption and Distribution.*
- Computer applications & Quantitative Methods in Archaeology Conference (Netherlands/Flanders Local Chapter), Leuven.
Paper title: *Modelling the origin of polis in Anatolia. From conceptual to computational approaches.*
- Theoretical Archaeology Group Conference, London.
Paper title: *Conceptual modelling of social complexity trajectories and inequality in urban networks.*
- Computer applications & Quantitative Methods in Archaeology Conference (Krakow)
Paper title: *Modelling the origin of polis in Anatolia. From conceptual to computational approaches.*
- 2018 Conference on Complex Systems, Thessaloniki.
Paper title: *Materialising complexity. A conceptual model of material culture, social complexity and mechanisms of change.*
- 24th Annual Meeting of the European Association of Archaeologists, Barcelona.
Paper title: *Carrying Capacity. A superseded concept or window of opportunities?*
- 19th International Congress of Classical Archaeology, Köln/Bonn.
Paper title: *Tracing organisation of labour and material production at Sagalassos.*

Theoretical Roman Archaeology Conference, Edinburgh.
Paper title: *Attracting cities: The role of urban attraction poles in a model of community formation and social complexity dynamics.*

2017 Conference on Complex Systems, Cancun.
Paper title: *Complexity Matters. Uncovering mechanisms of social complexity in the past.*

Quantification of Material Culture Workshop, Barcelona
Paper title: *Counting sherds is complex business. Quantifying micro dynamics in social complexity through material culture.*

2016 Conference on Complex Systems, Amsterdam.
Conference paper: *Dynamics of Social Organisation. Use of social practices and adaptive cycles to study past societies.*

2015 Second Conference of IARPotHP, Lyon.
Paper title: *Classical and Hellenistic Sagalassos. The ceramic evidence.*

International Mediterranean Survey Workshop, Göttingen.
Paper title: *Origin of polis 2.0. A case from SW Anatolia. What can survey data from Sagalassos and environs tell us?*

MANAGEMENT AND ADMINISTRATIVE POSITIONS

2021-Current Coordinator MA in Digital Archaeology program (Middle East Technical University)

2020-Current Executive council and main coordinator of NASA: Network for Agent-based modelling of Social-ecological systems in Archaeology.

2014-2021 Administration of Sagalassos Archaeological Research Project
Tasks: General administration & organization archaeological campaigns

Depot manager at Sagalassos excavations (Ağlasun, Turkey)

Archive manager of digital and physical archives of the Sagalassos Project (KU Leuven)

2018-Current Program Committee, Department of Archaeology (KU Leuven)

2018-2019 Member of sub-faculty council and AP fraction council at Faculty of Arts (KU Leuven)

2017-2018 Head representative of Assisting Personnel of Research Unit Archaeology, Art history and Musicology at sub-faculty council and AP fraction council at Faculty of Arts (KU Leuven)

COURSES, WORKSHOPS AND SUMMER SCHOOLS

2021 CoMSES Net International Winter School on Agent-Based Modeling of Social-Ecological Systems (Arizona State University, Online)

2020 Winter Workshop on Complex Systems (Lausanne)
Academic Presentation and Seminar Skills (KU Leuven)

2019 Complex Systems Summer School (Santa Fe Institute, Santa Fe)
Modelling and Simulation in Archaeology (SPOC, Leiden University)

- Introduction to Complexity (MOOC, Santa Fe Institute)
Fractals and Scaling (MOOC, Santa Fe Institute)
- 2018 Digital Archaeology Summer School (Barcelona)
Introduction to Model Thinking (MOOC, University of Michigan)
Academic Writing (KU Leuven)
- 2017 Introduction to Python for Data Science (DataCamp)
Introduction to Agent-Based Modelling (MOOC, Santa Fe Institute)
Workshop Agent-Based Modelling with NetLogo (CAA Atlanta)
Fundamental statistical methods with R (Leuven Statistics Centre)
LaTeX Introduction (KU Leuven)
- 2016 Introduction to R (Leuven Statistics Research Centre)
Essential Tools for R (Leuven Statistics Research Centre)
- 2015 Fundamental Statistical Methods (Leuven Statistics Research Centre)
Matlab Part 1: Introduction (Leuven Statistics Research Centre)
Matlab Part 2: Programming (Leuven Statistics Research Centre)
- 2014 Programming for Everybody: Python (MOOC, University of Michigan)

PROFESSIONAL AFFILIATIONS

- Network for Agent-based modelling of Social-ecological systems in Archaeology
- Complex Systems Society
- Young Researchers of the Complex Systems Society
- Pages (Past Global Changes) Early Career Network
- CAA International (Computer Applications & Quantitative Methods in Archaeology)
- CAA Special Interest Group on Scientific Scripting Languages in Archaeology
- European Association of Archaeologists (EAA)
- The International Association for Classical Archaeology
- International Association for Research on Pottery of the Hellenistic Period

REFERENCES

Prof. dr. Jeroen Poblome (KU Leuven): jeroen.poblome@kuleuven.be

Prof. dr. Sander van der Leeuw (Arizona State University): vanderle@asu.edu

Em. Prof. dr. John Bintliff: johnbintliff@gmail.com